DOCUMENT RESUME

ED 187 917 CE 025 599

TITLE	Project CHOICE: #66. A Career Unit for Grades 5 and 6. Forestry. (Agriculture and Ecological Studies Career Cluster).
INSTITUTION	Kern County Superintendent of Schools, Bakersfield, Calif.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Jan 78
NOTE	36p.: For related documents see CE 025 584-585, CE 025 587, CE 025 590-596, CE 025 600, CE 025 603, CE 025 605, CE 025 607, and CE 025 609.
EDRS PRICE	MF01/PC02 Plus Postage
DESCRIPTORS	*Career Awareness; Career Development; *Career Education; Educational Resources, *Forestry; *Forestry Occupations; Grade 5; Grade 6; Instructional Materials; Intermediate Grades; Learning Activities; Lesson Plans; Occupational Clusters; Occupations; Units of Study
IDENTIFIERS	Project CHOICE

ABSTRACT This teaching unit, Forestry, is one in a series of curriculum guides developed by Project CHOICE (Children Have Options in Career Education) to provide the classroom teacher with a source of career-related activities linking 5th and 6th grade elementary classroom experiences with the world of work.These nine lessons on forestry explore the many occupations related to preserving and maintaining forests, including the skills and attitudes necessary to perform these jobs. An introductory section gives the rationale for the unit, goals, performance objectives, entry-level assessment, and evaluation. A list of suggested instructional materials, such as films, filmstrips, books, community resources, and art supplies, is included in this section. Each lesson contains a statement of purpose, materials needed for the lesson, an introductory statement, class activities, and a summary activity. Written materials (such as worksheets, surveys, and task cards) are included where feasible. (MEK)

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OFFICE OF CLAUDE W. RICHARDSON
KERN COUNTY SUPERINTENDENT OF SCHOOLS

Project CHOICE
#66

A CAREER UNIT FOR GRADES 5 AND 6.

FORESTRY.

(Agriculture and Ecological Studies Career Cluster).

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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January, 1978

FOREWORD

Project CHOICE: Children Have Options in Career Education, is an Exemplary Project from the San Diego City School District, which has been adapted, with ESEA Title IV-C funding, for Kern County Schools.

Through Project CHOICE, units have been developed to provide the classroom teacher with a source of career-related activities linking classroom experiences with the world of work. All students, regardless of their post-high school plans, share an equal need for career awareness, decision making skills, and other elements of career education. This goal can be accomplished if all teachers and counselors "fit" the appropriate units where they best apply in the curriculum.

We are indebted to the San Diego City School District, and the Project CHOICE staff, for developing and field testing the original units.

For their excellent work in re-writing the units in order to adapt them for use in Kern County Schools, we wish to recognize:

Patricia Alexander
Kernville Union School District
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Standard School District
Carol Hatcher
Beardsley School District
James Murphy
Greenfield Union School District
Dan Sawyer
Tehachapi Unified School District
Sharon Shires
Rio Bravo - Greely Union School District
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FORESTRY

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Agriculture and Ecological Studies Career Cluster

FORESTRY

RATIONALE

We need our forest land for timber and water supply, animal grazing, and as a wildlife preserve. Millions of Americans spend their leisure time visiting and enjoying our country's forests. Through this unit, students will be exposed to the many occupations related to preserving and maintaining our forests. They will become familiar with the skills and attitudes necessary to perform these jobs. The students will learn the necessity of maintaining our forests. Some plants and wildlife will be studied.

GOALS

Through this unit, the students will:

-Learn about the occupations necessary to preserve our forests.

-Examine the mental attitudes and physical skills needed to work in forestry.

-See the relationships between educational skills and forestry.

-Gain an appreciation for the plants and animals that inhabit our forests.

-Learn the reasons why we need our forests.

-Become exposed to the problems threatening our forests.

PERFORMANCE OBJECTIVES

By the end of this unit students will be able to:

-Identify seven occupations related to forestry.

-List four mental or physical skills needed to be a forester.

-Know four major reasons why we need our forests.

-List two problems threatening our forests.

-Describe four forest plants or animals with accurate knowledge.

-List three school skills used in a forestry job.

-Define some forest terminology.

-List four forest safety rules.

ENTRY LEVEL ASSESSMENT
(To be used as a pre-test and a post-test.)

1. Can you name some jobs necessary to preserve our country's forests?

2. What do forestry workers do?

3. In what way would school-learned skills help these workers do their jobs?

4. What physical skills would be needed to work in the forest?

5. Why are forests necessary?

6. What are some things that can harm a forest?

7. Describe a forest animal and its habits.

8. Describe a forest plant or tree, and tell where it is found.

9. Name some special terms a forester should know? Tell what they mean.

10. Give some forest safety rules.

EVALUATION

The final lesson has been set aside for evaluation. The Entry Level Assessment may be used as a pretest as well as a post-test, or the teacher may wish to develop his/her own. Responses may be taped or written, so that comparisons may be made in order to determine how well pupils have achieved the objectives.

Note to the teacher:

The teacher should order the audio-visual materials, and invite guest speakers far enough in advance that they will be available.

Several of the task cards may be used as lessons for the entire class, or the teacher can have each child do a certain amount of the task cards, with the students selecting the ones they prefer.

SUGGESTED INSTRUCTIONAL MATERIALS

The following materials and equipment may be used in this unit:

-Films and filmstrips as listed.
-Books as listed.
-A variety of art materials.
-Guest speakers.
-Film projector, filmstrip projector.
-Task cards.
-Permission slips.

Films:

Forest Lookout
How Nature Protects Animals
Conserving Our Forest Today
Forest Ranger
Our Living Forests
From Trees to Lumber
Adventuring in Conservation
Importance of Water
Inquiry Into the American Wildlands
Life in the Forest

There are many other films on trees, plants, animals, insects, conservation, recreation and water uses, too numerous to list. If the teacher desires to emphasize some of these areas he/she should consult the A-V Guide, and choose those films appropriate.

Books

Dewey Number	Title	Author
582	The First Book of Wildflowers	Cavanna
574.5	Chain of Life	Collins
581	Insects and Plants	Cooper
582	Favorite Trees	Dudley
574	101 Best Nature Games and Products	Frankel
574.5	Ecology	Hoke
574	Discovering the Outdoors	Pringle
574	From Field to Forest	Pringle
574.5	Into the Woods	Pringle
574	Birth of a Forest	Selsam
591.5	Animals that Frighten People	Shuttlesworth
574	In the Forest and on the Marsh	Skrebitski

AVAILABLE FROM INSTRUCTIONAL RESOURCE CENTER: OFFICE OF THE KERN COUNTY SUPERINTENDENT OF SCHOOLS
(Please preview first, to be certain of suitability for specific students and situations).

Films:	MP	882	Mighty Western Forest
	MP	2207	Tree and Shrub Planting
	MP	3729	Your Career in Forestry
	MP	589	Conservation - A Job for Young Americans
	MP	6195	Lumberman
	MP	5938	Erosion
	MP	5224	Science Conserves the Forest
	MP	6073	Heritage; The Guard
	FS		Careers in Natural Resources
	slides	5256	Soils of California

COMMUNITY RESOURCES

The following persons may be contacted as resources for this unit:

Explorer Scouts; contact Mr. Johnson; 325-9036.

U.S. Fish and Wildlife Service; Department of Interior; 861-4216.

U.S. Forest Service; California Region; Sequoia National Forest; Greenhorn Ranger District; 800 Truxtun Ave.; Room 322; 861-4212; Bakersfield; contact Opal Grimes for information.

Note: A catalogue of forest service films is available from Janet Wells, Career Ed. Resource Teacher, Kern County Superintendent of Schools; 834-3700.

For more information write:

-Society of American Foresters
1010 16th St. NW
Washington, DC 20036

-U.S. Department of Agriculture
Forest Service
Washington, DC 20250

-California Department of Forestry has pamphlets available in the Spring.

INSTRUCTIONAL STRATEGY: LESSONS 1-9

Lesson 1

PURPOSE

To familiarize students with the reasons for preserving our forests. To create an understanding of the forest's many uses.

MATERIALS

1. Chart paper.
2. Felt pen.
3. Forest conservation film: see suggestions available from Instructional Resource Center, Superintendent of Schools (list at beginning of unit).
4. Film projector.

INTRODUCTION

Say: "Today we will begin our study of forestry. Why do you think we try to keep some areas of our country as forests rather than use the land for houses and stores? Let's see how many reasons we can list."

CLASS ACTIVITIES

1. List the students' responses on chart paper.
2. View and discuss film.
3. Add to your list any reasons for preserving our forests learned from the film. Make sure your list includes timber supply, water sheds, grazing and recreation areas.

SUMMARY

1. Discuss the list the class has made.
2. Encourage students to talk about their experiences camping in parks and forests.

Lesson 2

PURPOSE

To teach students the mental and physical skills needed in forestry work. To show the responsibilities of being a forest ranger.

MATERIALS

1. Suggested film: Your Career in Forestry 3729 Available from Instructional Resource Center, Superintendent of Schools.

2. Film projector.

3. Worksheet #1, next page, to be duplicated and distributed to each student.

INTRODUCTION

Say: "Do you think you have the mental and physical qualities to enable you to be in forestry work? Today we will have an opportunity to rate ourselves. We will also see a film showing the many responsibilities of a forest ranger."

CLASS ACTIVITIES

1. Pass out worksheet to the students. Read through it and add new traits if students can think of more.

2. Give students 5 minutes to rate themselves.

3. View film.

SUMMARY

1. Discuss the responsibilities of a forest ranger including the supervision of grazing, timber, watersheds, recreation facilities, fire prevention and knowledge of plant diseases.

2. Discuss worksheets filled out by students.

Worksheet 1
(To be duplicated and used with Lesson 2)

Physical and Mental Traits of a Forester

Do you have what it takes to be a forester? Put a ☐+ in the box next to the qualities you possess. Make a ☐↘ if you are not sure. Make a ☐− if you are sure you do not have that trait.

Physical Traits

- ☐ Good Health
- ☐ Good Eyesight
- ☐ Good Hearing
- ☐ Stamina

Personality Traits

- ☐ Willingness to be alone
- ☐ Sense of responsibility
- ☐ Liking for the outdoors
- ☐ Ability to express self well
- ☐ High moral character
- ☐ Liking for animals
- ☐ Willing to work hard

Lessons 3 and 5

PURPOSE

To expose students to information about the many types of animals that inhabit our forests. To help students appreciate the wonders of nature.

MATERIALS

1. Encyclopedias, magazines, library books, study prints, filmstrips or anything having information about animals. (See films available from Instructional Resource Center, Superintendent of Schools).

2. Pencils, paper.

INTRODUCTION

Say: "We have been learning about our country's forests and parks. Today we will be doing research on the animals that inhabit them."

CLASS ACTIVITIES

1. View film listed above or any film on forest animals, if desired.

2. Have children browse through the books, etc. on animals. Have them tell you which animals they have decided to research.

3. Give time for students to gather information to include in a report.

4. Tell students the report should be in their own words and their sources of information should be included. Pictures may be drawn or shown from a book at report time.

SUMMARY

1. Lesson 5 will be report day. Encourage students to do their best.

INFORMATION

The U.S. Forest Service has films, publications, and teaching kits available for use upon request. Call 861-4212, Sequoia National Forest Greenhorn Ranger District. 800 Truxtun Avenue. 2-3 weeks advance notice required. Return immediately after showing. A copy of the film catalog is available in the office of Janet Wells in the Superintendent of Schools Office, 834-3700.

Lesson 4

PURPOSE

To emphasize the need for safety in our parks and forests.

MATERIALS

1. Poster paper.
2. Crayon, chalk or paint.
3. Scratch paper.

INTRODUCTION

Say: "In order to enjoy our forests and parks we need to know and practice safety rules. Today we will discuss forest safety and make posters displaying some safety measures."

CLASS ACTIVITIES

1. Discuss dangers that could occur in our forests. Include floods, lightning, fire, negligent hunters, snakes and wild animals. Be sure to discuss what to do to avoid these dangers.
2. Have the students make posters with a safety rule and picture representing one of these dangers. Sketch on scratch paper first.

SUMMARY

1. Give students an opportunity to display and discuss their posters.

Lesson 5

PURPOSE	To expose students to information about the many types of animals that inhabit our forests. To help students appreciate the wonders of nature.
MATERIALS	1. Students' reports begun in Lesson 4.
INTRODUCTION	Say: "In a previous lesson we worked on reports about forest animals. Today we will hear those reports."
CLASS ACTIVITIES	1. Listen to reports.
SUMMARY	1. Discuss some of the things learned from students' reports.

Lesson 6

PURPOSE

To acquaint students with the many related jobs necessary to maintaining our forests.

MATERIALS

1. Movies, filmstrips or study prints.
   Interviews.
   Books, encyclopedias, pamphlets, magazines, etc.

2. Paper and pencils.

3. Worksheet 2, next page.

INTRODUCTION

Say: "We have seen movies and have heard a guest speaker talk about forestry and its related jobs. Today you will choose a related job that interests you and gather information about that job."

CLASS ACTIVITIES

1. Pass out Worksheet 2. Add any new jobs the students know of.

2. Give students the opportunity to write a report from books and other materials. You may want to give them extra time outside of class time to utilize other sources, such as the public library or a high school career center.

SUMMARY

1. Make a bulletin board of students' reports.
   or
   Use another lesson to hear the students read them.

Worksheet 2
(To be used with Lesson 6)

(Duplicate and distribute to students.)

JOBS RELATED TO FORESTRY

1. Agriculturist
2. Botanist
3. Biologist
4. Zoologist
5. Fish and wildlife specialist
6. Fur farmer
7. Plant pathologist
8. Nurseryman
9. Park naturalist
10. Forest technician
11. Timber cruiser
12. Fire dispatcher
13. Fire lookout
14. Recreation guard
15. Smoke jumper
16. Pilot

Lesson 7

PURPOSE

To enable students to use some of the knowledge they have gained from this unit in an open-ended story.

MATERIALS

1. Paper.
2. Pencil.
3. Worksheet 3, next page.

INTRODUCTION

Say: "We have learned many things about our forests and parks. Today we will incorporate some of these facts into a story."

CLASS ACTIVITIES

1. Pass out Worksheet 3 and have students read it aloud.
2. Tell the students they are to complete the story, including the things to do when lost in the wilderness.
3. Encourage them to use facts they have learned from this unit about plants, animals and forests.
4. Students write stories.

SUMMARY

1. Listen to stories.
2. Have the class discuss correct things to do when lost (Worksheet 3).

Worksheet 3
(Duplicate and use with Lesson 7).

LOST IN THE WOODS

At last Charlie and Barbara were going camping. They had wanted to go for months, but there was always some disappointing delay. Now the day had finally arrived. Eleven year old Barbara smiled at her thirteen year old brother, as the car wound its way into the mountains and pine trees.

The children were not at the campsite for an hour before Barbara begged her brother to accompany her on a hike. They excitedly grabbed their compass, penknife, canteen and sweaters and hiked in the direction of the late afternoon sun.

It sure felt terrific for Charlie and Barbara to stretch their legs after six hours of riding in the car, imprisoned in seatbelts. Barbara chased Charlie and Charlie ran behind trees to jump out and scare her. They were having a wonderful time until they realized the sun was about to disappear behind a hill, and that they were lost. In all their excitement they had not paid careful attention to where they were going. They had simply followed that quickly disappearing sun...

Lesson 8

PURPOSE

To help students discover that soil is made up of many things. To observe interdependence of animals, plants and soil.

MATERIALS

1. Paper.
2. Pencil.
3. Magnifying glasses for every other student.
4. 5 lbs. of soil (taken from the school grounds, if you wish, since it can be replaced after the lesson).

INTRODUCTION

Say: "One of the reasons foresters plant trees is to prevent soil from eroding or washing away. But what is soil made of? How does it get in the forest in the first place? We will do an experiment today that will answer these questions."

CLASS ACTIVITIES

1. Divide students into five groups.
2. Give each group a pound of soil,
   a sheet of paper with pencil,
   and magnifying glasses.
   Also scratch paper to put under the soil.
3. Have one student list all the things her group finds in the soil. The list will probably include insect parts, wood, glass, string, rocks, leaves, etc.

SUMMARY

1. Have recorder from each group read the list.
2. Compare and discuss what the soil contained.
3. Discuss: Could life on our planet survive without soil?

Lesson 9

PURPOSE

To enable students to assess their knowledge and understanding of forestry and its related fields.

MATERIALS

1. Entry Level Assessment.

2. Tape recorder, tape
   or
   duplicated copies of test.

INTRODUCTION

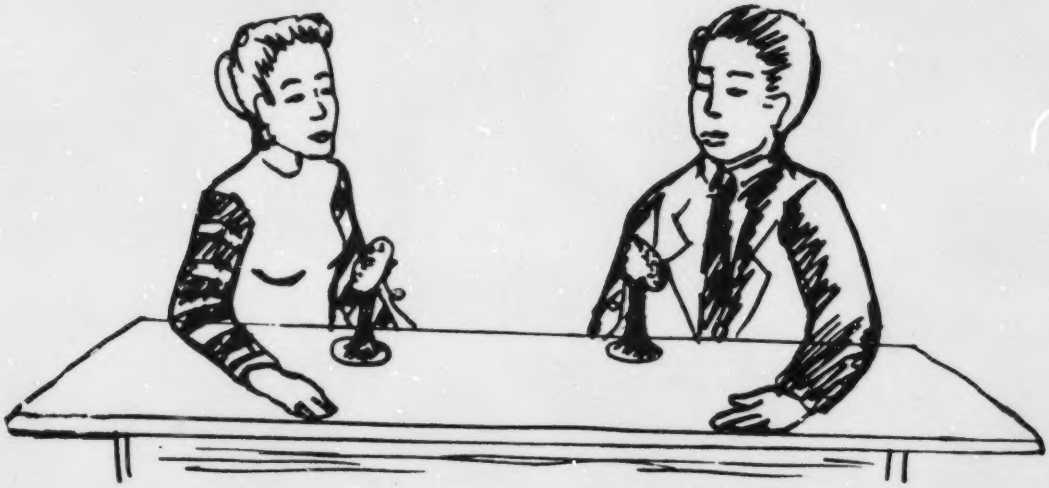
Say: "Today we will find out what we have learned about forestry."

CLASS ACTIVITIES

1. Discuss questions and record responses
   or
   administer written test.

SUMMARY

Children should feel free to comment on what they have learned. They should also feel free to talk about things they've liked or disliked about certain lessons in this unit or the unit itself.



DEBATE

You need:

1. at least two people
2. facts
3. an audience

Most people see the need for parks and forests to preserve wildlife, insure an adequate water supply, use for recreation needs, supply our country with timber and insure grazing land for animals. Others may feel that we need the forest lands to build houses and stores for our country's growing population, or that maintianing this land is too expensive. Some people might think that the forests are too dangerous to enjoy, and the wildlife unnecessary to preserve. After all, we can always see animals at the zoo.

You take one side of the debate and have another student handle the opposition. Gather as much information as you can to support your argument. Have your debate in your classroom. See how convincing you can be.

WHAT DOES A FORESTER WEAR?

You need:

1. drawing paper
2. chalk, crayons, pencils or paint

Most people working in forests need to wear uniforms so they can be recognized as forest workers. Their clothing must protect them from bad weather. They must carry some tools in order to carry out their tasks.

Draw a picture of a forester in a uniform you have designed. Draw some tools needed to accomplish forestry tasks.

Display your creation.

HIKING

You need:

1. paper
2. pencil
3. a friend

Choose a friend, grab a pencil and some paper, and go for a hike. Keep track of the things you observe. Did you see animals, footprints, cocoons, nests, wild berries, flowers or people? Share your observations with your class.

MAKE A FORESTRY TREE

Can you think of ten jobs related to the care of our country's forests? List them on this tree.

BEAR ATTACK

You need:

1. paper
2. pencil

Occasionally the newspaper reports a story about bears attacking people camping in our national parks. Sometimes the bear is hunted and killed; while other times it is tranquilized and moved to a less inhabited area. What do you think should be done after a bear attack? Tell why you think so. Ask your classmates what they think.

You need:

1. paper
2. pencil
3. a camp counselor

Do you know someone who has been a camp counselor? If so, interview him/her. Find out if he/she enjoyed the job. Find out about salary, working conditions, exciting experiences and the physical and mental skills needed to be a camp counselor. Read your interview to the class.

ONLY YOU CAN PREVENT FOREST FIRES!

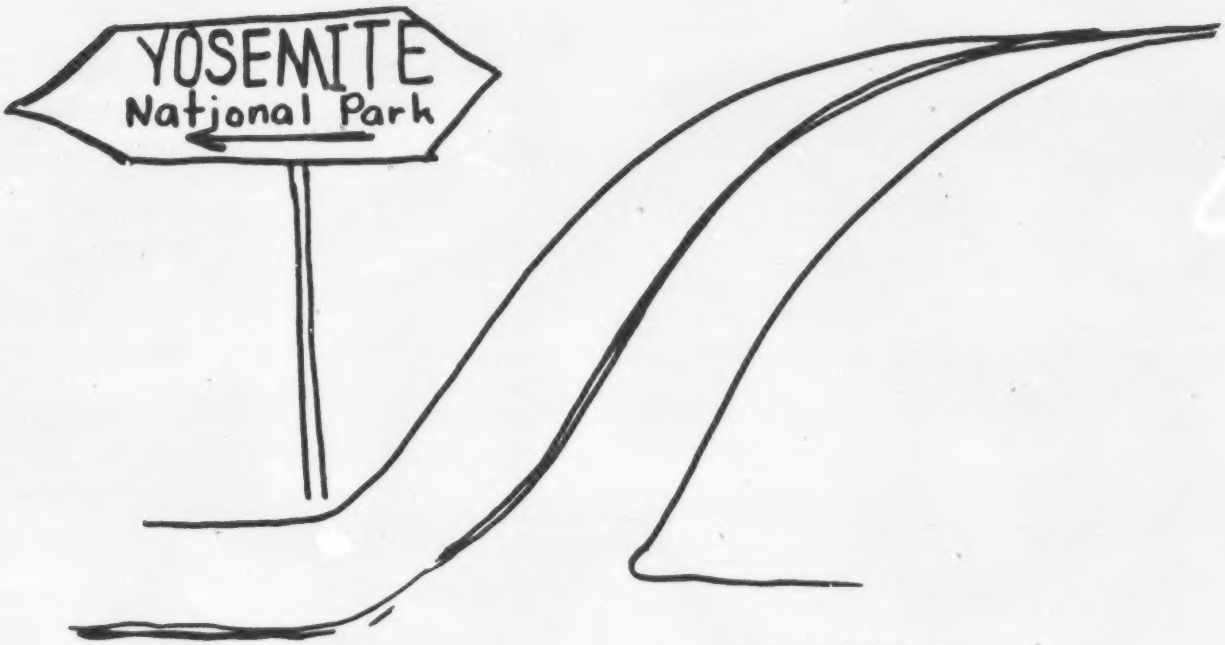
You need:

1. poster paper
2. crayons, chalk or paint

For years Smokey The Bear* has been used as a symbol of forest fires prevention. Invent your own fire prevention animal. Make a poster showing your fire prevention animal and some safety slogans he would use to prevent fires.

Show your poster to the class.

*Smokey the Bear is no longer being used in fire prevention commercials.



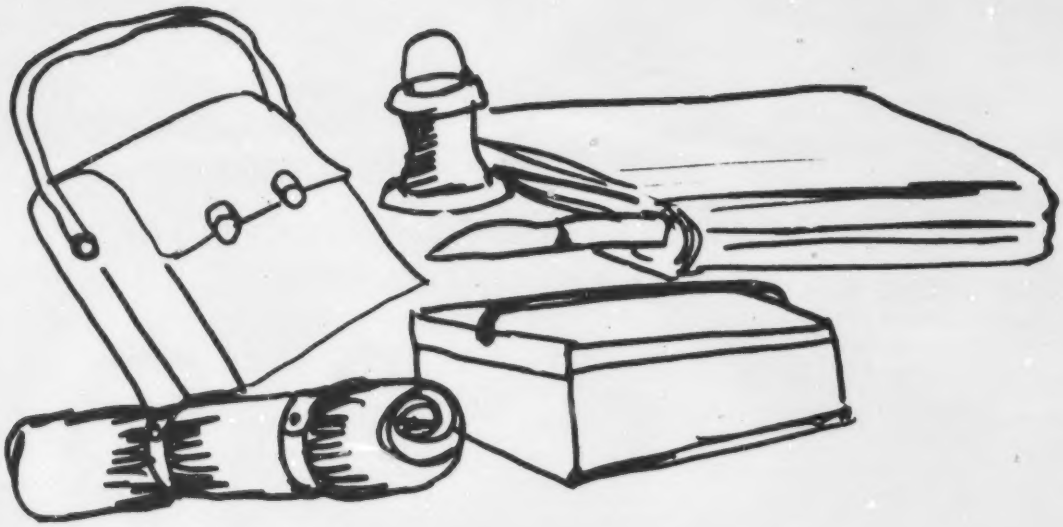
SLIDE SHOW

You need:

1. slides
2. slide projector
3. information about the park you visited

Have you visited a city or national park recently? Did you take slides of the plants, facilities and wildlife? If you have some good slides of your visit make arrangements to show them to your class. Be able to identify the things you are showing.

Perhaps several students could bring in their slides on the same day while the projector is already set up.

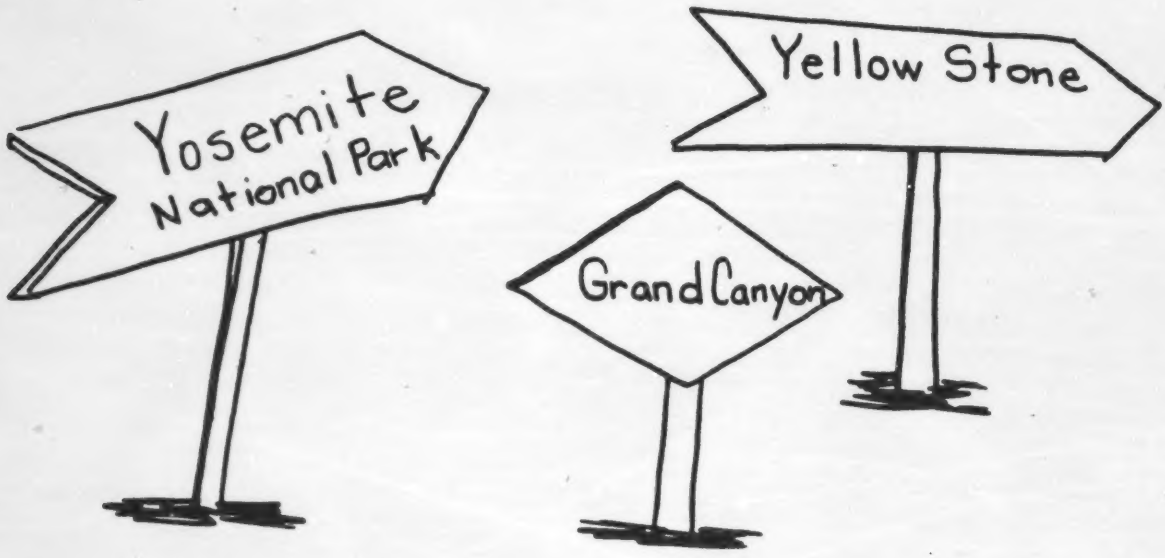


GOING CAMPING

You need:

1. drawing paper
2. pencil or crayons
3. a good memory

When a family goes camping there are many things they must take along with them so they can survive in their new environment. On drawing paper, make pictures with labels of the many things you will need. You may list some things without pictures if you have over ten things. Ask a friend to look over your list to see if you left out anything important.

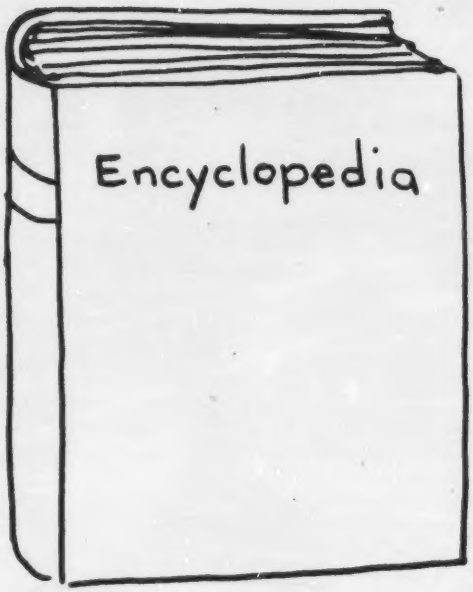


OUR NATIONAL PARKS

You need:

1. pencil or pen
2. stationery, envelope and stamp

Choose any one of our National Parks. Write a letter asking for information and pamphlets telling about it. Read the material you receive. Share some of the most interesting facts with your class.

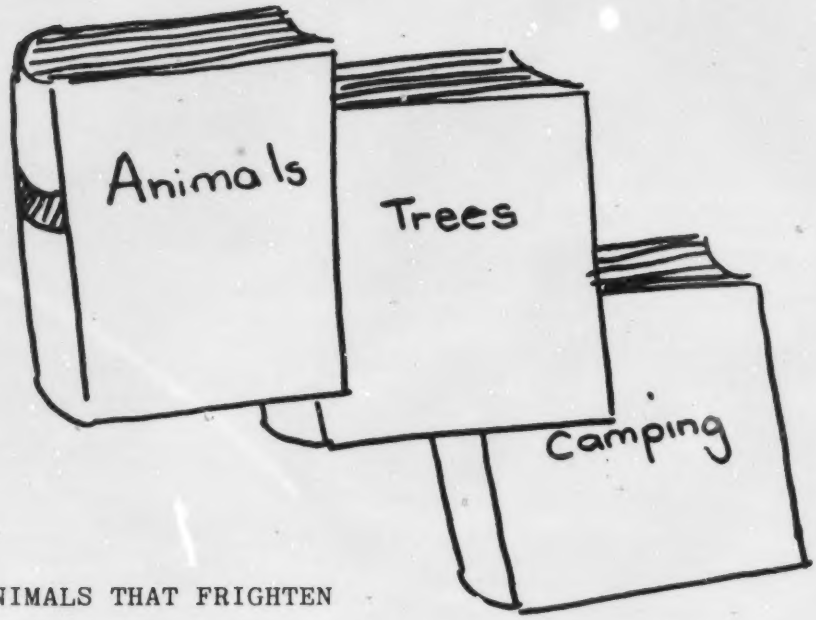


WILD FLOWERS

You need:

1. pencil or crayon
2. paper
3. a book about wild flowers such as The First Book of Wild Flowers by Betty Cavanna

Find a book or encyclopedia which contains information and pictures of wildflowers. Make a report for your class showing a drawing of a flower with the pistil, stamen and petals labeled. Then gather some samples of wild flowers you find camping, hiking or close to home. Mount your samples on card board and write down what kinds they are. If samples cannot be found, draw large pictures of these different wild flowers. Be ready to give some information about each flower.

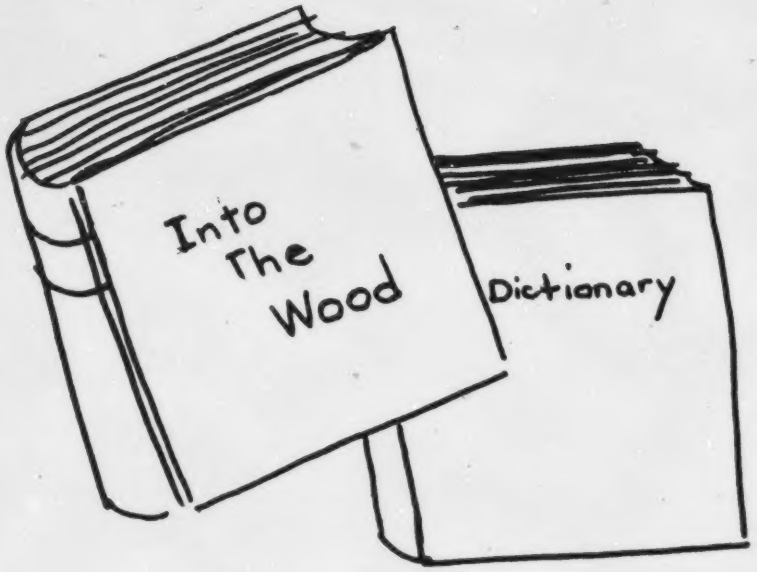


ANIMALS THAT FRIGHTEN PEOPLE

You need:

1. paper
2. pencil
3. book: Animals That Frighten People, or another source about scary animals

Use the book or other source and make a report about some animal people seem to fear. What are the animal's habits? Is the animal as frightening once you have learned more about it? Share your discoveries with your class.



WORD DEFINITIONS

You need:

1. paper
2. pencil
3. book with information about forests, such as, Pringle's Into The Woods, or a dictionary

Learning about forests and wildlife exposes people to words they have never used before. See if you can define 10 of these words. Read your definitions to the class.

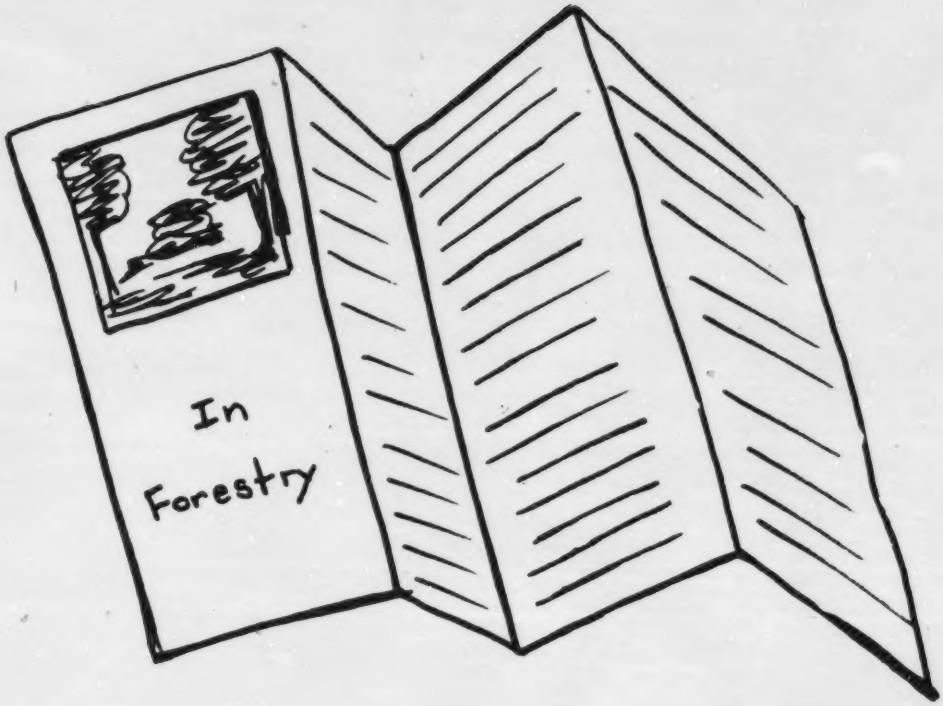
1. deciduous
2. conifer
3. erosion
4. spore
5. shrub
6. larvae
7. photosynthesis
8. humus
9. habitat
10. fungus
11. ecology
12. climate

OUR NATIONAL FORESTS

You need:

1. pencil
2. paper
3. imagination

Early Americans destroyed forests to make farm land. Early pioneers did not know conservation would be necessary someday to insure an adequate supply of lumber, paper and soil conservation. In 1875, the American Forestry Association was formed. In 1891 forest reserves were set aside and called "national forests". From 1933 to 1942 millions of trees were planted in these forests, roads were built and firebreaks and firetowers were made. It was the beginning of the large national forestry system we have today. Write a short report telling what our country would be like if we had not set aside these areas. What would our country do without lumber and without recreational areas? Mention problems affecting our forests such as vandalism, pollution and plant disease. Read your report to the class. Perhaps they have some ideas about this, too.



THE RESPONSIBILITIES OF FOREST WORKERS

You need:

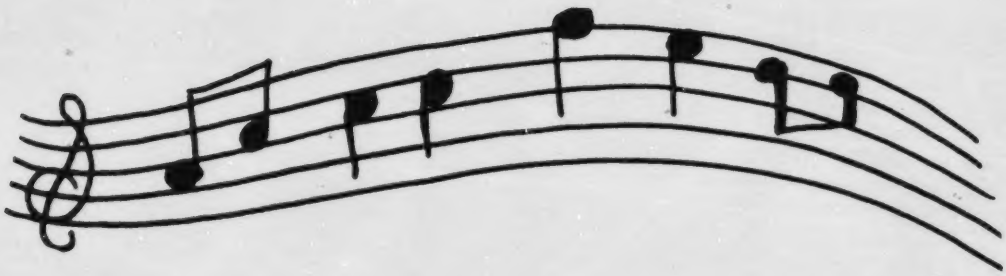
1. paper
2. pencil
3. library books about forestry-related jobs

Below is a list of some of the jobs done by forest workers. Often, which jobs you do depends on the forest in which you work. Choose 2 or more jobs. Find out all the information you can about it.

Make a report to include the information you have found.

1. Water control
2. Recreation supervision
3. Permits for cabin building
4. Permits for stockmen wanting to graze herds
5. Gives lectures
6. Guides field trips
7. Advises about campsites and road locations
8. Wildlife protection
9. Tree re-planting
10. Checks for plant disease
11. Marks trees ready for cutting
12. Writes for outdoor magazines
13. Search and rescue
14. Naturalist

Foresters working for private businesses are usually working as timber managers, concerned with the planting, cutting and milling of timber.



SONG WRITING

You need:

1. piano (or other musical instrument)
2. paper
3. pencil
4. friends

Get together with a talented friend or two and write a song about our wildlife, the work of a forester, or the jobs of camping. Your song can be funny or sad. Put your words to music and practice with your friends.

Perform your song in front of your class. Who knows -- this may make you famous!!